APPENDIX A - PROJECT DESIGN FEATURES

Appendix A has three parts: A-1 (Project Design Features by Issue); A-2 (Soil and Water Conservation Practices); and A-3 (Monitoring).

A-1 PROJECT DESIGN FEATURES BY ISSUE

All action alternatives include design features that would better implement the project. All applicable Forest-wide and Management Unit direction identified in the Forest Plan are hereby incorporated by reference unless otherwise stated. In this part of Appendix A, the project design features are organized by issue. Additional details and specifications for timber harvest activities and roads are in A-2. Some of the soil and water conservation practices (SWCPs) in A-2 are also applicable to the reconstruction of water collection and conveyances. Additional details and specifications for the reconstruction of water facilities are in the project file and are available on request.

Features Responsive to Issue #1 – Forest Vegetation

Forest Vegetation

Applicable to all proposed activities

- Directional felling will be required to protect residual stands and improvements.
- Trees felled in one calendar year shall be removed by October 15 of the following year.
- Insect-infested materials must be disposed of as required by an Agency representative. Disposal methods can include removal, burning, or other approved treatment.

Applicable to timber harvest and associated activities

- Employ felling, bucking, and yarding measures to provide protection for live residual tree stands. Limit logs lengths to protect residual stand as needed.
- Fall trees in beetle trap areas in advance of the planned yarding and loading. Regional entomology specialists will determine timing of felling and removal. In general, trap trees should be felled in shade, be at least 16 inches DBH, and left unbucked and unlimbed to attract beetles.
- Special salvage objectives will be included depending on the current level of insect infestation.
- Silvicultural thinning and weeding of conifers under eight inches DBH will occur following harvest in all uneven-aged managed stands. These trees will be thinned to an average spacing of 11 feet. Residual trees per acre will vary based on existing stand condition. All conifers within and around aspen clones in the uneven-aged managed

stands will be felled to remove competition with the aspen. Slash from this activity will be lopped and scattered to a 24-inch height.

- Felling of all non-commercial sized conifers will occur in all even-aged managed stands to protect the naturally regenerated aspen from conifer competition. The slash will be jackpot burned to reduce fuel loadings and stimulate aspen sprouting.

- Where aspen occurs within harvest areas, reforestation measures would favor aspen regeneration through coppice sprouting. Spruce seedlings would not be planted within the fringe area around existing aspen clones. The width of the fringe area should not exceed the height of the dominant aspen trees in the clone or 2/3 the height of the surrounding conifer trees. If aspen sprouting does not naturally occur where expected after harvest, mechanical preparation or prescribed fire may be used as part of post-harvest treatment of slash to further stimulate sprouting.

- Reforestation of openings in uneven-aged managed stands will be monitored for Engelmann spruce regeneration. If sufficient natural regeneration of Engelmann spruce does not occur, these areas will be artificially planted to meet stocking requirements.

- Based upon monitoring, reforestation protection activities may include the fencing of aspen regeneration units due to big-game browse.

- Treatment of gophers will occur only where needed using underground treatment methods in spruce stands. Control measures may be applied when 25 to 35 percent of a 2-year old plantation or 40 to 50 percent of a 3 to 5 year old plantation contains active gopher mounds (The Northern Pocket Gopher, Ronald E. Bonar, Wallowa-Whitman National Forest, August 1995). During the first, third, and fifth year stocking survey exams, the plantations will be visually assessed for gopher activity.

Applicable to water collection and conveyance system construction or reconstruction

- Prior to clearing and grading, any timber to be removed will be marked and cruised by species to determine the volume of timber to be removed. All marking and cruising will be done by qualified individuals approved by the respective land management agency. The proponents will purchase all merchantable timber products and pay all associated costs. The Forest Service will appraise the timber products and the proponents will pay the appraised values through a timber sale contract developed by the Forest Service.

- Woody debris that is not removed during clearing will be temporarily stockpiled along the outside edge of the pipeline corridor or within designated openings on the edge of the corridor. These materials will be reapplied over the trench and in other areas of the corridor after construction to provide erosion control and prevent use by off-road vehicles. No stockpiles will be left following reclamation.

Fuel Loading and Fire Risk

Applicable to all proposed activities

- Green slash will be treated within one year due to bark beetle concerns.

- Green cull material will be left attached to the merchantable pieces and yarded to the landing for slash disposal.

Applicable to timber harvest and associated activities

- Slash, substandard, and cull material should be reduced to 10-15 tons/acre for material greater than 3 inches in diameter within harvest units to protect soil productivity and provide micro-site protection for seedling establishment and protection. Materials less than 3 inches in diameter should be reduced to approximately 5 tons/acre. Materials should be evenly distributed over the area. Twenty-five percent of the material should be greater than 10 inches in diameter and should not be capable of hosting Engelmann spruce bark beetles. It is desirable to have the materials in varying degrees of decomposition. See Wildlife Resources issue #2, Recreation issue #6, and Soil Productivity issue #12 for additional and related design features.

- Lop and scatter logging slash depths to no more than 24 inches high.

- Firewood gathering in harvest areas will be controlled with appropriate permits.

Air Quality

Applicable to all proposed activities

- Follow the procedures and requirements in the State of Utah Smoke Management Plan

- Use techniques to minimize smoke production and impacts from prescribed and slash burning:
  - Follow the procedures and requirements in the State Smoke Management Plan.
  - Follow guidance in Manti-La Sal National Forest Smoke Management Guideline for Prescribed Fire.
  - Burn when conditions are good for rapid dispersion.
  - Burn under favorable moisture conditions.
  - Keep soil out of burn piles.

- Notify area residents and users of activity.

Features Responsive to Issue #2 – Wildlife Resources (Northern Goshawk and Three-Toed Woodpecker)

Applicable to all proposed activities

- Activities in active goshawk post-fledgling areas in or in the vicinity of Units 1, 3, 4, 5, and 6 are restricted from March 15 through August 15.

Applicable to timber harvest and associated activities

- Retain 300 snags per 100 treated acres with a minimum of 18 inches DBH and 30 feet in total height. Reserve trees will be protected.

- Retain 100 tons of woody debris per 10 acres greater than 3 inches in diameter, inclusive of down logs. See Forest Vegetation issue #1 for additional and related design features.

- Provide 50 logs per 10 treated acres within the project area when available. Logs should be a minimum size of 12 inches in diameter at the mid-point and 8 feet in length.

Applicable to water collection and conveyance system construction or reconstruction

- In wetlands, collection overflows should be returned to the wetlands. In other areas, overflows should be conveyed to the stream network. All overflows must be designed to minimize erosion.

- A trough will be installed during the reconstruction of the Dickson Spring collection source.

- Overflows/bypasses will be required in all collection boxes.

- Line meters will be installed in all water lines.

Features Responsive to Issue #3 – Visual Landscape

Applicable to all proposed activities

- Employ techniques such as edge feathering, leave trees, and project layout to duplicate naturally occurring openings and vegetative patterns consistent with the desired landscape character and ecological timeframes.

- Within 100 feet of FR 50079, final stump cuts should be low to the ground with dirt scattered on the stump.

Applicable to timber harvest and associated activities

- Landscape Architect and Presale Forester will visit the project area to confirm visually sensitive areas and apply specific contract provisions.

- Where practical, locate skid trails and logging road corridors away from view of Forest roads and trails. Alignment of such skid trails and corridors should use frequent curves and follow natural contours of the land.

- Where practical, reduce slash to 5 tons per acre or less within 100 feet of the FR 50079. The Landscape Architect and Forester will identify suitable slash burn sites and disposal methods on the ground.

- Woody slash debris should be spread evenly over skid trails, temporary roads, landings, and other disturbed areas. The treatment should replicate slash treatment to

adjacent areas along visual corridors.

Applicable to water collection and conveyance system construction or reconstruction

- The Forest Landscape Architect and project supervisor/administrator will visit the project area to confirm visually sensitive areas and coordinate with Monticello City to apply specific survey and design layouts.

- Where practical, locate waterlines with frequent changes in horizontal alignment to break up the straight-line effect from all view zones.

Features Responsive to Issue #4 – Municipal Watershed

Applicable to all proposed activities

- Fully implement the Soil and Water Conservation Practices, as identified in Part A-2, State Best Management Practices, and other requirements or stipulations identified in this EIS to assure compliance with applicable water quality protection agreements and regulations.

- Camping and storage of hazardous materials will not be permitted in the Municipal Water Supply Areas identified in the Forest Plan unless otherwise approved.

- Hazardous materials will be stored in upland locations and no closer than 200 feet from a perennial or intermittent stream channel, wetland, or riparian area.

- Porta-potties will be required at work gathering locations within the Municipal Water Supply area as identified in the Forest Plan. Locations, numbers, and sanitation servicing of the porta-potties shall be agreed upon before commencement of project work. Agreements may be modified based upon current needs.

Applicable to timber harvest and associated activities

- A minimum of one-end suspension is required for cable logging.

- No mechanical equipment is permitted within 100 feet of any perennial stream unless authorized in writing. Streamside Management Zones will be identified and protected.

- A 200 foot unharvested buffer will be left around the snow course.

- Landings will not be located in Streamside/Riparian Management Zones.

Applicable to road construction and reconstruction

- See Appendix A-2.

Features Responsive to Issue #5 – Transportation System

Applicable to all proposed activities

- Classified forest roads will be protected improvements.

- Snow plowing shall be done in a manner to preserve and protect roads to insure safe and efficient transportation and to prevent unacceptable erosion damage to the road,

streams, and adjacent lands.

- Install warning signs and devices on classified roads commensurate with project and public safety. When necessary, traffic controllers (flaggers) will be used.

- Apply dust abatements on classified roads as necessary based upon air quality, safety, and water quality. Dust abatement may also be necessary on other heavily used travel routes.

- Vehicle traffic and equipment operation will be restricted during wet periods to prevent rutting in excess of one inch on gravel roads and 4 inches on native surface roads. Vehicle traffic and equipment operation may also be restricted during dry periods if native surface roads become powdered.

Applicable to timber harvest and associated activities

- Log landing and decking areas will be limited to no more than 1/2 acre in size for ground-based and cable yarding areas and less than 2 acres in size for helicopter yarding units.

- Landings along FR 50354 will be utilized for turnouts and parking after the completion of timber harvest and associated activities. Appropriate erosion prevention and control and slashing for decommissioning will be incorporated for the remaining portions of the landing or landings not needed for the transportation facility.

- Construct temporary roads to facilitate decommissioning and to prevent unauthorized use.

- Preclude public use of constructed temporary roads by closure order, signing, and other measures as appropriate.

- Log haul trucks must be capable of negotiating curve radii of 40 feet. Log lengths will be restricted to protect the associated road prism and vegetation along Forest roads.

Applicable to road construction and reconstruction

- Final gravelling of FR 50079 may be completed after removal of included timber.

Features Responsive to Issue #6 – Recreation

Applicable to all proposed activities

- All harvest, roadwork, and pipeline construction activities are prohibited during the day before the season opener and the first two days of the general rifle elk and deer hunts.

- Roads and/or trails may be closed to public travel on weekdays to facilitate safe operations.

- Snow plowing will be coordinated with recreation to facilitate winter recreation access and parking. See Wildlife Resource issue #7 for additional and related design features.

Applicable to timber harvest and associated activities

- Hauling logs and moving equipment on weekends and holidays are prohibited.

Applicable to road construction and reconstruction

- Reconstruction of FR 50079 is prohibited during October and November unless approved in writing.

Applicable to water collection and conveyance system construction or reconstruction

- Pipeline construction along FR 50079 is prohibited during October and November unless approved in writing.

Features Responsive to Issue #7 – Wildlife Resources (Deer and Elk)

Applicable to all proposed activities

- Where calving/fawning areas are identified, timber sale operations and pipeline activities shall be suspended between May 15 and July 5 unless authorized by District Ranger based upon current conditions.

Applicable to timber harvest and associated activities

- Winter hauling is restricted from December 1 to May 15 due to big game winter range considerations on adjacent lands off-Forest and winter recreation use. Log hauling and other activities outside the normal operating season may or may not be approved based upon current and predicted weather patterns, big game herd health, and recreation needs.

Features Responsive to Issue #8 – Noxious and Invasive Weeds

Applicable to all proposed activities

- Continue control of noxious weeds with existing decisions and agreements.

- Equipment shall be cleaned of soils, seeds, vegetative matter, or other debris that could contain or hold noxious seeds. Operators will certify in writing that off-road equipment is free of noxious weeds prior to start up of operations.

- Noxious weed free certification will be required for all straw or hay bales used for erosion control, any mulches, and seed applied in reclamation.

Applicable to water collection and conveyance system construction or reconstruction

- City of Monticello will be responsible for noxious weed control, regardless of origin, around the water diversions and along the pipeline corridor. These activities, including corridor access will be coordinated with the Forest Service.

Features Responsive to Issue #9 – TES Plants

Applicable to all proposed activities

- Identified plants and habitat will be marked, staked out, and flagged to identify the areas where no project activity will occur.

- Where appropriate, barriers may be placed to prevent project equipment and personnel from disturbing sensitive plants and their habitat.

Features Responsive to Issue #10 – Fisheries

Applicable to all proposed activities

- See Municipal Watershed Issue #4 and Soil Issue #12 for design features also relevant to Fisheries.

Applicable to timber harvest and associated activities

- All perennial streams crossed by temporary roads will be reviewed by a Fish Biologist or Hydrologist and Engineer to determine the need for and location of appropriate fish passage structures.

Applicable to road construction and reconstruction

- Culvert replacements will be reviewed by a Fish Biologist or Hydrologist and Engineer to evaluate and design fish passage needs.

Features Responsive to Issue #11 – Wildlife and Other Species of Interest

Applicable to all proposed activities

- Known active raptor nest sites will be protected during the nesting season period from March 1 to Sept 30. If raptor nests are found during project activities, operators will be required to notify the Forest Service within 24 hours.

- Nest trees with cavities will be protected when practical.

Applicable to timber harvest and associated activities

- Flammulated Owl - Manage for the retention of all large snags containing cavities along ridge tops and at mid-slope on south or east aspects in areas containing Douglas-fir mixed with spruce and/or aspen.

Applicable to water collection and conveyance system construction or reconstruction

- To offset losses of water due to reconstruction of the City of Monticello's water collection and conveyance system, 3 to 5 guzzlers will be installed to provide water for wildlife on the east side of the Abajo Mountains (Potential Wildlife Drinker/Guzzler Locations Map, project file).

- To offset losses of water from reconstruction of one collection source, the City of Monticello will install a new watering trough in the Dickson Spring area. They will ensure that water flow to existing troughs attached to the system is provided following reconstruction.

Features Responsive to Issue #12 – Soil Productivity

Applicable to all proposed activities

- The Normal Operating Season is July 5 through October 15.

- Fully implement the Soil and Water Conservation Practices, as identified in Part A-2,

State Best Management Practices, and other requirements or stipulations identified in this EIS to maintain soil productivity and assure compliance R4 Soil Quality Guidelines.

- During extended periods of wet weather, vehicle traffic and equipment operation will be restricted to prevent rutting in excess of 6 inches in depth or soil liquefaction. Additional temporary erosion control measures may be necessary. If temporary erosion control measures are not effective, construction will be suspended until conditions improve.

- During extended period of dry weather, additional measures may be necessary to prevent powdering of soils, to maintain firm working surfaces, to limit fugitive dust, and to maintain appropriate moisture conditions to protect topsoils.

- Rip areas having severe compaction after use to a depth of 8-12 inches; scarify other compacted areas to a depth of 2-4 inches to prepare a seed bed.

Applicable to timber harvest and associated activities

- Temporary work roads, skid-trails and roads, and landings will be returned to resource production and use compatible with the management unit emphasis. Appropriate erosion prevention and control, and slashing for reclamation will be incorporated (see Appendix A-2).

- Woody slash debris should be spread evenly over skid trails, temporary roads, landings, and other disturbed areas. See Forest Vegetation issue #1, Wildlife Resource issue #2, and Recreation issue #6 for additional and related design features to slash and woody debris.

- Prescribed burning would be conducted to not adversely affect the soil resource (i.e. manage fire intensity to obtain desired results).

Applicable to water collection and conveyance system construction or reconstruction

- Topsoil will be salvaged from the trench, segregated from the subsoil, and returned during reclamation.

Features Responsive to Issue #13 - Cultural Resources

Applicable to all proposed activities

- Evaluate, protect, and monitor all National Register eligible sites.

- Where project activities cannot be modified to protect sites in-place, develop plans to recover scientific data in accordance with the National Resources Protection Act, Archaeological Resources Protection Act, and the Native American Graves Repatriation Act.

- Consult with appropriate Native American entities.

Applicable to timber harvest and associated activities

- Discovery of previously unknown sites, on either the surface or subsurface, may occur during project implementation. Include C(T)6.24# Protect Cultural Resources to protect these resources.

Applicable to water collection and conveyance system construction or reconstruction

- Discovery of previously unknown sites, on either the surface or subsurface, may occur during project implementation. Such discovery will be promptly reported to the other party and the site will protected until a determination of eligibility for the National Register can be made, and appropriate changes in design or recovery of data implemented.

Features Responsive to Issue #14 – Rangeland Management

Applicable to all proposed activities

- Protect all range improvements from project-caused damage. This includes existing troughs attached to the City of Monticello's water collection and conveyance system. The City will ensure that water is supplied to these existing watering areas for livestock and wildlife use as part of the reconstruction of the water system.

Applicable to timber harvest and associated activities

- Coordinate grazing and timber activities. The timber sale administrator will send a copy of the general operating plans to range specialists to help facilitate this coordination.

Applicable to water collection and conveyance system construction or reconstruction

- Coordinate grazing and pipeline activities. Special use coordinator will send a copy of the general operating plans to range specialists to help facilitate this coordination.

- Livestock grazing would be discouraged within the pipeline corridor and reclaimed roads for two to three seasons to allow vegetation (for erosion control) to become established. Grazing could be discouraged by resting an entire unit, herding techniques, animal husbandry, salting, and seed mixes not attractive to livestock.

- Fences crossed by the pipeline will be braced and secured before cutting the opening to prevent slacking of the wire. The opening thus created will be closed by temporary gates as necessary to prevent passage of livestock.

Features Responsive to Issue #15 – Geology, Land Stability, and Minerals

- None

Features Responsive to Issue #16 – Economics

- None

A-2.-.SOIL AND WATER CONSERVATION PRACTICES

Appendix A-2 describes the practices (SWCPs) from the Soil and Water Conservation Handbook (FSH 2509.22) that will be applied to actions proposed in all alternatives. Refer to the handbook for more information regarding specific practices.

Abbreviations used in this table:

CO - Contracting Officer
COR - Contracting Officer's Representative
DR - District Ranger
ER - Engineering Representative
IDT - Interdisciplinary Team
MC - Marking Crew
PS - Project Supervisor/Administrator
PSF - Pre-sale Forester
SAM - Sale Area Map
SMZ - Streamside Management Zone
SPS - Special Project Specification
TSA - Timber Sale Administrator
TSC - Timber Sale Contract

The specifications column of this table is intended to provide a cross-reference between the SWCPs and CT and BT clauses that should be included in timber sale contracts, and to identify requirements and/or mitigation measures that should be included in special use permits, burn plans, and other project documents.

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
11.07	OIL AND HAZARDOUS SUBSTANCE SPILL CONTINGENCY PLANNING - To minimize contamination of water from accidental spills by prior planning and development of Spill Prevention Control and Countermeasure Plans	A SPCC Plan is required if the total, above-ground storage of oil, petroleum products, or other hazardous materials exceed 1320 gallons, or any single container exceeds a capacity of 660 gallons. Petroleum products and other hazardous materials will not be stored in areas designated in the Forest Plan as MWS.	COR; ER; PS	CT6.34 CT6.341 Special use permit
11.08	CONTROL OF ACTIVITIES UNDER SPECIAL USE PERMIT - To protect surface and subsurface soil and water resources from physical, chemical, and biological pollutants resulting from activities that are under special use permit.	The special use permit details the conditions/mitigating measures required of the permittee in order to continue operations on National Forest System lands.		
		For water facility construction: Parking of individual vehicles, construction equipment, and support vehicles will be confined to the pipeline corridor unless approved by an Agency representative. During extended periods of wet weather, vehicle traffic, and equipment operation will be restricted to prevent rutting in excess of 6 inches in depth or soil liquefaction. Additional temporary erosion control measures may be necessary. If temporary erosion control measures are not effective, construction will be suspended until conditions improve. During extended period of dry weather, additional measures may be necessary to prevent powdering of soils, to maintain firm working surfaces, to limit fugitive dust, and to maintain appropriate moisture conditions to protect topsoils.	PS	Special use permit and associated contract specifications
11.13	SANITARY GUIDELINES FOR CONSTRUCTION OF TEMPORARY LABOR, SPIKE, LOGGING, AND FIRE CAMPS AND SIMILAR INSTALLATIONS - To eliminate water pollution and other potential environmental and	Camping will not be permitted in areas designated in the Forest Plan as MWS unless otherwise approved. Porta-potties will be required at work gathering locations in areas designated in the Forest Plan as MWS during timber harvest activities and water facility reconstruction.		

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
	health impacts from the disposal of human waste and wastewater from temporary camps of all types.			
11.14	MANAGEMENT OF SNOW SURVEY SITES - To protect snow courses and related data sited from effects by land management activities	Camp Jackson SNOTEL site is adjacent to the project area but will not be affected by any proposed activities. The Buckboard snow course, Sec 30 T33S R23E, is adjacent to a proposed aspen unit. Leave a 200' unharvested buffer around the snow course.	PSF, MC, TSA	BT6.22
13.02	SLOPE LIMITATIONS FOR TRACTOR OPERATION - To reduce gully and sheet erosion and associated sediment production	Ground-based logging (including forwarders) will be limited to slopes of 40% or less.	PSF	CT6.42#
13.03	TRACTOR OPERATION EXCLUDED FROM WETLANDS, BOGS, AND WET MEADOWS - To limit soil damage, turbidity, and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion.	Application of the SWCP is mandatory for all vegetation manipulation projects; exceptions must be specifically addressed in the EIS. The project supervisor and/or Contracting Officer are responsible for identifying wetlands and meadows not previously recognized in the NEPA process and for following management controls and contract provisions pertaining to wetland and meadows. Protection of wetlands (mapped and unmapped) should be included in pre-work briefings.	PSF, CO, COR, TSA, IDT specialists	BT6.61 CT6.61#
		Reconstruction of Monticello's pipeline and diversion facilities will require construction in some natural and created wetlands and wet meadows.		
13.04	REVEGETATION OF SURFACE DISTURBED AREAS - To protect soil productivity and water quality by minimizing soil erosion	Helicopter landings and rehabilitated roads will be seeded per the Erosion and Sediment Control Plan. Tractor-based landings may be reserved for natural regeneration or seeded. The seed mix will be made up of native species.	TSA	CT6.601# CT6.602#
		The disturbed soil over the trench and travelway will be seeded with mix of native species approved by an agency representative.	PS	
13.05	SOIL PROTECTION DURING AND FOLLOWING SLASH WINDROWING - To prevent removal or severe disruption of the productive surface soil and to minimize losses from erosion	Material should be windrowed on contour. Little to no soil should be incorporated in the piles		CT6.7#
13.06	SOIL MOISTURE LIMITATIONS FOR TRACTOR OPERATION - To minimize soil compaction, puddling, rutting, and gullying with resultant sediment production and loss of soil productivity. ***Note that this SWCP applies to all heavy equipment operations.***	During wet conditions, vehicle traffic and equipment operation will be restricted to prevent rutting in excess of one inch on gravel roads, 4 inches on native surface roads and 6 inches in other work areas. Proponent(s) will provide maintenance equipment to repair rutting as soon as ground conditions permit. During extended periods of dry weather, additional measures including vehicle and equipment restrictions may be necessary to prevent powdering of soils, to maintain firm working surfaces, to limit fugitive dust, and to maintain appropriate moisture conditions to protect topsoils during reclamation. Follow R4 Soil Quality Standards and Guidelines for detrimental puddling and compaction.	TSA PS	BT6.6 Special use permit
13.08	APPLY PESTICIDES ACCORDING TO LABEL AND EPA REGISTRATION DIRECTIONS - To avoid water contamination by complying with all label instructions and restrictions.	Gopher control using strychnine may be necessary in planted spruce stands. Label directions, other constraints identified on the label and legal requirements for application and disposal will be incorporated into project plans and contracts. Noxious weeds will be controlled using liquid or solid herbicides. Label directions, other constraints identified on the label and legal requirements for application and disposal		Project safety plan

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
		will be incorporated into project plans and contracts.		
13.12	PROTECTION OF WATER, WETLANDS, AND RIPARIAN AREAS DURING PESTICIDE SPRAYING – To minimize the risk of a pesticide entering surface of subsurface waters or affecting riparian areas, wetlands, and other non-target areas.	Leave an untreated (unsprayed) buffer alongside surface waters, wetlands, and riparian areas. Considerations in establishing buffer widths include beneficial water uses including aquatic life; climatic conditions; terrain and vegetation; the persistence, mobility, and toxicity of the pesticide; and the type of application equipment. Buffer zones should be flagged or otherwise marked as necessary to aid in boundary location.		
14.01	TIMBER SALE PLANNING - To incorporate soil and water resource considerations into Timber Sale Planning.	IDT specialists will evaluate watershed characteristics and estimate response to proposed activities. EIS identifies design criteria intended to protect soil and water resources. Timber sale contract will include provisions to meet water quality, soils, and other resources as directed by the Record of Decision.	IDT; PSF	N/A
14.02	TIMBER HARVEST UNIT DESIGN- To insure timber harvest unit design will secure favorable conditions of water flow, maintain water quality and soil productivity, and reduce soil erosion and sedimentation.	Prescriptions will be designed to assure an acceptable level of protection for soil and water resources. IDT specialists will work with PSF during unit layout to avoid sensitive areas, adjust unit boundaries, add specific BMPs to meet specific SWCPs and implement the Forest Plan Riparian Area Guidelines	IDT, PSF	N/A
14.03	USE OF SALE AREA MAPS (SAMs) FOR DESIGNATING SOIL AND WATER PROTECTION NEEDS -To delineate the location of protected areas and available water sources and insure their recognition, proper consideration, and protection on the ground.	All perennial and intermittent streams will be designated for stream course protection and/or included in a Streamside Management Zone. Other water features with buffer zones (see the design features) will also be included in the SAM**.** ***Note that SWCP 13.03 is mandatory and applies to mapped and unmapped wetlands***. Ground verification and preparation of SAMs to be included in TSC will be done by Presale Forester. TSA reviews areas of concern with purchaser before operations.	IDT specialists; PSF; TSA	BT1.1 BT5.1 BT6.5 CT6.50#
14.04	LIMITING THE OPERATION PERIOD OF TIMBER SALE ACTIVITIES - To minimize soil erosion and sedimentation and loss in soil productivity by insuring the purchaser conducts his/her operations in a timely manner. ***Note that this SWCP also applies to water facility reconstruction***.	See also 13.06. The normal operating season on National Forest land is July 5th to October 15th.		
		Pre-sale forester will prepare a TSC that includes the appropriate provisions to prevent loss of soil/water resources, including seasonal restrictions. TSA and ER will limit operations as on-the-ground conditions warrant.	ER; PSF; TSA	BT5.12 BT6.31 BT6.6 CT5.12# CT6.3 CT6.311 CT6.312# CT6.6#
		For water facility reconstruction, construction activities outside the normal operating season will require supplemental plans addressing temporary shutdown and erosion control measures. If temporary erosion control measures are not effective, construction will be suspended until conditions improve.		
14.05	PROTECTION OF UNSTABLE AREAS - To protect unstable areas and avoid triggering mass movements of the soil mantle and resultant erosion and sedimentation.	IDT specialists have identified unstable areas and mitigation measures in NEPA process. Mitigation measures will be incorporated into TSC.	IDT specialist; PSF; TSA	BT6.6
14.06	RIPARIAN AREA DESIGNATION - To minimize the adverse effects on riparian areas with prescriptions that manage nearby logging and related land disturbance activities.	See 14.03. The minimum Streamside/Riparian Management Zone will be 100 feet around seeps and springs, 100 feet from land or reservoir high water lines, 100 feet from each perennial stream bank, 100 feet from the outer perimeter of a wetland, and 50 feet from the top of each intermittent stream bank. This information will be included in the TSC and sale area map. Wider/larger zones may be designated through	IDT specialists; PSF; MC; TSA	BT6.5 CT6.42# CT6.50# CT6.6#

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
		consultation among the PSF and IDT specialists.		
14.07	DETERMINING TRACTOR LOGGABLE GROUND - To protect water quality from degradation caused by tractor logging ground disturbance.	IDT and PSF have identified general areas of tractor loggable ground during transportation and timber sale planning process. PSF will prepare a TSC that includes provisions stating areas and conditions by which tractors can operate.	IDT; PSF	BT6.42 CT6.42# CT6.6#
14.08	TRACTOR SKIDDING DESIGN - To minimize erosion and sedimentation and protect soil productivity by designing skidding patterns to best fit the terrain.	IDT specialists and PSF have identified sensitive areas during layout. The TSA will locate the skid trails with the timber purchaser or approve the purchaser's proposed locations prior to operation.	TSA	BT6.42 BT6.422 BT6.6 CT6.42# CT6.6#
14.10	LOG LANDING LOCATION AND DESIGN - To locate in such a way as to avoid soil erosion and water quality degradation.	TSA must approve landing locations proposed by the purchaser. Approved landing locations will meet the criteria of minimal size, least excavation needed, minimal crossing of stream channels, minimum skid roads necessary, no side-cast material into sensitive areas, and proper drainage. Landings will not be located in Streamside/Riparian Management Zones. Landing associated with ground-based and cable harvesting will be no more than ½ acre each; those associated with helicopter harvesting will be no more than 2 acres each.	TSA	BT6.422 CT6.42# CT6.6#
14.11	LOG LANDING EROSION PREVENTION AND CONTROL - To reduce erosion and subsequent sedimentation from log landing through the use of mitigating measures.	Some landings along FR 50354 will be retained for turnouts and parking; the remainder will be reclaimed. PSF and TSA will assess what is necessary to prevent erosion from landings and to ensure reclamation. The TSA will request technical assistance as needed. Considerations include proper drainage and dispersion of water including preventing any road runoff from reaching the landing, shaping cuts and fills, decompaction, revegetation, spreading slash.	PSF; TSA	BT6.422 BT6.6 BT6.63 BT6.65 BT6.66 CT6.42# CT6.6# CT6.601# CT6.602# CT6.7#
14.12	EROSION PREVENTION AND CONTROL MEASURES DURING THE TIMBER SALE OPERATION - To ensure that the purchaser's operations shall be conducted reasonably to minimize soil erosion.	The timber sale contract sets purchaser's responsibility to prevent soil/water resource damage. TSA ensures that erosion control is kept current and prevents operations when excessive impacts are possible. The kinds and intensity of work done shall be adjusted to ground and weather conditions, including seasonal periods of precipitation and the need for controlling runoff.	PSF; TSA	BT6.6 BT6.62 BT6.63 BT6.64 BT6.65 BT6.66 CT6.42# CT6.6#
14.14	REVEGETATION OF AREAS DISTURBED BY HARVEST ACTIVITIES - To establish a vegetative cover on disturbed areas to prevent erosion and sedimentation.	TSA is responsible to see that revegetation work required by purchaser is done correctly and in a timely manner. For this project, the purchaser will be responsible for revegetation for one year after the completion of harvest or acceptance of the sale unit, whichever comes first.	IDT; TSA	CT6.601# CT6.602#
14.15	EROSION CONTROL ON SKID TRAILS - To protect water quality by minimizing erosion and sedimentation derived from skid trails.	See the Erosion and Sediment Control Plan. IDT specialists will identify areas of special concern. TSA will ensure erosion control measures are applied prior to expected hydrologic events (spring runoff, high-intensity storms, etc.). Purchaser must complete and maintain erosion control work as specified in TSC.	TSA	BT6.6 BT6.64 BT6.65 BT6.66 CT6.42# CT6.6#
14.16	MEADOW PROTECTION DURING TIMBER HARVESTING - To avoid damage to the ground cover, soil, and water in meadows (wet and dry).	Unauthorized operation of vehicular or skidding equipment on meadows designated on SAMs and/or marked on the ground is prohibited. Vehicular or skidding equipment shall not be used on meadows except where roads, landings, or tractor road are approved. PSF will verify the areas needing protection and prepare the contract to prevent damage to meadows. The TSA will be responsible for on-the-ground protection of meadows. If meadows are found by the TSA	IDT specialists; PSF; TSA	BT6.61 CT6.61#

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
		during operations, it is their responsibility to either afford them the proper protection or pursue a contract modification. ***Note that SWCP 13.03 requires the protection of both mapped and unmapped wet meadows and other wetlands.***		
14.17	STREAM CHANNEL PROTECTION (IMPLEMENTATION AND ENFORCEMENT) - To protect natural stream flows; to provide unobstructed passage of flows; reduce sediment input; and restore flow if diverted by timber sale activity.	All perennial and intermittent streams will be designated for stream course protection and/or included in a Streamside Management Zone. PSF will prepare a SAM locating the channels needing protection. Other water features with buffer zones (see the design features) will also be included in the SAM. TSA will see that TSC items are carried out on the ground. IDT specialists will be consulted as needed.	IDT specialists; PSF; TSA	BT6.5 CT6.50# CT6.6#
14.18	EROSION CONTROL STRUCTURE MAINTENANCE - To insure constructed erosion control structures are stabilized and working effectively.	During the period of the TSC, the purchaser shall provide maintenance of soil erosion control structures constructed by the purchaser until they become stabilized 1) for up to, but not for more than, one year after their construction or 2) the sale unit is accepted as final, or 3) the sale is closed. If work is needed beyond this time, the District will pursue other sources of funding.	TSA	BT6.5 BT6.66
14.19	ACCEPTANCE OF TIMBER SALE EROSION CONTROL MEASURES BEFORE SALE CLOSURE - To assure the adequacy of required erosion control work on timber sales.	A careful review of erosion prevention work will be made by the TSA before each harvest unit is accepted as final. The inspection will determine if the work is acceptable and will meet the objective of the erosion control feature. Work is not acceptable if it does not meet standards or is not expected to protect soil/water values. Technical assistance will be used as necessary. See SWCP 14.18 - erosion prevention work done in the previous year should be periodically inspected during the life of the timber sale to determine maintenance needs within the first year following construction and to evaluate adequacy of the work and any necessary modifications.	ER; TSA	BT6.35 BT6.6 BT6.62 BT6.64 BT6.65 BT6.66 CT6.6#
14.20	SLASH TREATMENT IN SENSITIVE AREAS - To protect water quality by protecting sensitive tributary areas from degradation which would result from using mechanized equipment for slash disposal.	All activities will comply with the Forest Plan Riparian Area Guidelines. SWCP 13.03 and 14.16 restrict equipment operation in Streamside Management Zones, buffer zones around lakes and wetlands, and streams designated for stream course protection	TSA Fuels Specialist	BT6.5 BT6.7 CT6.50# CT6.61# CT6.7#
14.22	MODIFICATION OF THE TSC - To modify the TSC if new circumstances or conditions indicate that the timber sale will cause irreversible damage to soil, water, or watershed values.	If TSC is not adequate to protect soil/water resources, the TSA and Contracting Officer are responsible for recommending a modification of the TSC.	TSA; CO	BT8.3 CT8.3 CT8.32
15.01	GENERAL GUIDELINES FOR TRANSPORTATION PLANNING - To introduce soil and water resource considerations into transportation planning.	The IDT specialists have evaluated watershed characteristics and estimated the response of soil and water resources to proposed transportation alternatives and activities. The EIS includes design features and mitigation measures to avoid or reduce adverse soil and water effects. A roads analysis per FS6334 (1999) has been completed	IDT specialists; ER	N/A
15.02	GENERAL GUIDELINES FOR THE LOCATION AND DESIGN OF ROADS AND TRAILS - To locate and design roads and trails with minimal soil and water impact while considering all design criteria.	Mitigation measures have been designed to protect the soil and water resources identified in the NEPA process. Contract provisions will be prepared by the ER that meet the soil and water resource protection requirements.	IDT specialists; ER	N/A
15.03	ROAD AND TRAIL EROSION CONTROL PLAN - To prevent, limit, and mitigate erosion, sedimentation, and resulting water quality degradation prior to the initiation of construction by timely	IDT has established soil/water conservation mitigation measures. ER will then prepare a contract incorporating these measures. ER will see that erosion control measures are approved and completed in a timely manner. IDT specialists may review projects to check effectiveness of erosion control features.	IDT specialists; ER	BT6.31 BT6.5 BT6.6 CT6.3 CT6.311

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
	implementation of erosion control practices.			
15.04	TIMING OF CONSTRUCTION ACTIVITIES - To minimize erosion by conducting operations during minimal runoff periods.	Purchasers and other contractors shall schedule and conduct operations to prevent erosion and sedimentation. Temporary erosion control measures may be required to prevent, control, and mitigate erosion and sedimentation. Permanent erosion control work must be kept current with ongoing operations, especially when construction occurs outside of the normal operating season. ER and IDT specialists will develop site-specific erosion control measures as needed. ER assured compliance with specification, plans, and schedules.	IDT specialists; ER	BT6.31 BT6.6 CT6.3 CT6.311
15.05	SLOPE STABILIZATION AND PREVENTION OF MASS FAILURES - To reduce sedimentation by minimizing the chances for road-related mass failures, including landslides and embankment slumps.	IDT specialists has mapped areas susceptible to mass failures. Unstable areas are generally avoided; site-specific designs will be developed for areas that cannot be avoided.	IDT specialists; PSF; ER	BT6.31 BT6.6 CT6.3 CT6.311
15.06	MITIGATION OF SURFACE EROSION AND STABILIZATION OF SLOPES - To minimize soil erosion from road cut slopes, fill slopes, and travel ways.	See the Erosion and Sediment Control Plan. Stabilization techniques are included in contract provisions. Compliance is assured by TSA or ER.	TSA; ER	BT6.31, BT6.6, BT6.62, BT6.63, BT6.64, BT6.65, BT6.66 CT5.2, CT5.23#, CT5.4#, CT5.44#, CT5.45#, CT5.46, CT6.50#, CT6.6#,
15.07	CONTROL OF PERMANENT ROAD DRAINAGE - To minimize the erosive effects of concentrated water and the degradation of water quality by proper design and construction of road drainage systems and drainage control structures.	IDT specialists have identified locations needing special designs, design criteria, drainage control features, and mitigation. No more than 200 feet of ditch will lead into perennial or intermittent stream channels. Compliance will be assured by the ER/Contracting Officer.	ER	BT5.4 BT6.6 CT5.4 CT5.41# CT6.3 CT6.6#
15.08	PIONEER ROAD CONSTRUCTION - To minimize sediment production and mass wasting associated with pioneer road construction.	Construction of pioneer roads will be confined to the roadway construction limits unless otherwise approved by ER. Construction will be conducted to prevent undercutting of final cut slope, prevent deposition of materials outside the designated roadway limits, and accommodate drainage with temporary culverts or log crossings unless otherwise approved. Erosion control work will be completed concurrent with construction activity. ER/TSA will be responsible for enforcing contract specifications. The purchaser is responsible for submitting an operating plan that includes erosion control measures.	ER; TSA	BT5.23 BT6.31 BT6.6 CT6.3 CT6.311
15.09	TIMELY EROSION CONTROL MEASURES ON INCOMPLETE ROADS AND STREAM CROSSING PROJECTS - To minimize erosion of and sedimentation from disturbed ground on incomplete projects.	IDT has identified project location and mitigative measures in NEPA process. Protective measures will be kept current on all areas of disturbed, erosion-prone areas. TSA ensures contract compliance.	IDT; TSA	BT5.23 BT6.31 BT6.6 BT6.65 BT6.66
15.10	CONTROL OF ROAD CONSTRUCTION, EXCAVATION, AND SIDE-CAST MATERIAL - To reduce sedimentation from unconsolidated excavated and side-cast material caused by road construction, reconstruction, or maintenance.	Protective measures must be applied to all disturbed, erosion-prone areas. When operating outside the normal operating season, erosion control measures must be kept current. Areas must not be abandoned for the winter with remedial measures incomplete. ER and TSA ensure contract compliance.	ER; TSA	CT5.4

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
15.11	SERVICING AND REFUELING EQUIPMENT - To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, and other harmful materials.	ER, TSA will designate the location, size, and use of service refueling areas. Refueling areas will be a minimum of 200 feet from perennial and intermittent stream channels, seeps and springs, wetlands, lakes and reservoirs, stock water developments, and other water features. All projects will adhere to the Hazardous Substance Spill Plan in case of accidents.	ER; TSA;	CT6.34 CT6.341
15.12	CONTROL OF CONSTRUCTION IN RIPARIAN AREAS - To minimize the adverse effects on riparian areas from roads.	Except at designated stream crossings, road construction will avoid placing fill materials in riparian areas that will affect the ecological values of the stream or wetland. IDT specialists will be consulted as necessary.	ER; TSA; IDT specialists	BT6.5 BT6.61 CT6.50#
15.13	CONTROLLING IN-CHANNEL EXCAVATION - To minimize stream channel disturbances and related sediment production.	During construction of roads and installation of stream crossings, it may be necessary for construction equipment to cross or operate near riparian areas. This will be permitted only at locations designated by the ER or TSA with input from IDT specialists. In-channel excavation should be planned for low flow periods and be accomplished in as short a timer period as possible. Materials stockpiled or disposed of should be placed and contained in areas above the probable high water lines. Steam channels impacted by construction activity will be restored to their original plan and profile; stream bed armoring should be replaced to the extent possible.	ER; TSA; IDT specialists	BT6.5
15.14	DIVERSION OF FLOWS AROUND CONSTRUCTION SITES - To minimize downstream sedimentation by insuring that all stream diversions are carefully planned.	Flow must sometimes be guided or piped around project sites. Diverted flows shall be restored to the natural streamcourse as soon as practicable and, in any event, prior to the major storm season or fish migration season. Stream channels impacted by construction activity will be restored to their natural cross-section, grade, condition, and alignment as soon as possible.	CO; COR; ER	
15.15	STREAM CROSSINGS ON TEMPORARY ROADS - To keep temporary roads from unduly damaging streams, disturbing channels, or obstructing fish passage.	Culverts, temporary bridges, low water crossings, or fords will be required on temporary roads at all locations where it is necessary to cross stream courses. This includes perennial streams and intermittent drainages. Such facilities shall be designed and installed to provide unobstructed stream flow and fish passage, and to minimize damage to stream courses. Stream bank excavation shall be kept to the minimum needed for use of the crossing.	ER; TSA	BT5.1 BT6.62 CT6.6# CT6.72 Special use permit
15.16	BRIDGE AND CULVERT INSTALLATION - To minimize sedimentation and turbidity resulting from excavation for in-channel structures.	See the Erosion and Sediment Control Plan for specific construction guidelines. Protective measures will be kept current on all areas of disturbed, erosion-prone areas. ER ensures contract compliance.	ER	BT6.5
15.17	REGULATION OF BORROW PITS, GRAVEL SOURCES, AND QUARRIES - To minimize sediment production from borrow pits, gravel sources, and quarries, and limit channel disturbance in those gravel sources suitable for development in floodplains.	The borrow areas and gravel sources associated with this project will be in upland locations. Were possible, topsoil should be removed and stockpiled for use as surface dressing during reclamation. Rehabilitate both the pit area and access roads to control runoff into and from the area and to control erosion.	ER	
15.18	DISPOSAL OF RIGHT-OF-WAY AND ROADSIDE DEBRIS - To insure debris generated during road construction is kept out of streams and prevent slash and debris from subsequently obstructing channels.	Debris will not be placed in the stream channel or floodplain; debris from tree felling will be removed. Streamside willows may be removed in clumps, set aside, and replaced during cleanup/shaping of the disturbed area. Other debris will be disposed of in adjacent upland areas. Disposal method will be specified by the ER or TSA	ER; TSA	BT6.5
15.19	STREAM BANK PROTECTION - To minimize sediment production from stream banks and structural abutments in natural waterways.	Applies to stream crossings and areas where roads are adjacent and/or parallel to the stream channel. Stabilize using riprap and/or other materials as necessary to prevent stream bank and bed erosion.	TSA; ER	BT6.5

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
15.21	MAINTENANCE OF ROADS - To maintain all roads in a manner which provides for soil and water protection by minimizing rutting, failures, side-cast, and blocking of drainage facilities.	Road maintenance will be completed in association with timber sale. See rutting standards in the design features. The ER/SA will ensure roads are maintained according to the appropriate maintenance level.	ER; TSA	BT5.12 BT5.4 BT6.6 BT6.66 CT5.4# CT5.41# CT5.412# CT6.3 CT6.6#
15.22	ROAD SURFACE TREATMENT TO PREVENT LOSS OF MATERIALS - To minimize the erosion of road surface materials and, consequently, reduce the likelihood of sediment production.	Selected road segments may be graveled and/or treated with some type of dust abatement material. ER ensures contract compliance.	ER	CT5.4#
15.23	TRAFFIC CONTROL DURING WET PERIODS - To reduce the potential for road surface disturbance during wet weather and reduce sedimentation.	Road restrictions and traffic control measures will be implemented on all roads when damage occurs. The decision to restrict a road is made by the ER. Hauling restrictions or suspension of operations would be controlled by the TSA. During the normal operating period, vehicle traffic and equipment operation will be restricted to prevent rutting in excess of one inch on gravel roads, four inches on native surface roads and six inches in other work areas. Proponent(s) will provide maintenance equipment to repair rutting as soon as ground conditions permit. During extremely dry conditions, vehicle traffic and equipment operation may be restricted if native surface roads or other work areas become powdered. Beyond the normal operating period, vehicle traffic and equipment operation will be restricted to dry or frozen conditions. Roads that must be used outside the normal operation period or during wet periods should have a stable surface and sufficient drainage to allow such use with a minimum of resource impact. Road improvements, such as aggregate, may be applied per Forest Service specification to facilitate continued operations.	ER; TSA	BT6.6 CT5.46# CT5.51# CT6.6# Road use permit
15.24	SNOW REMOVAL CONTROLS - To minimize the impact of snow melt on road surfaces and embankments and reduce the probability of sediment production resulting from snow removal operations.	Snow removal will be kept current on all roads used for winter logging operations. During snow removal, a minimum of 4 inches of show will be left on the roadway. Cut banks shall not be undercut nor shall gravel be bladed off the roadway. Ditches and culverts shall be kept functional. Snow berms should be removed or breached at a spacing to provide surface drainage without discharge over erodible fills. Deicing agents will not be used without special authorization from the ER or TSA. The ER and TSA ensure compliance with contract provisions.	ER; TSA	CT5.46#
15.25	OBLITERATION OF TEMPORARY ROADS - To reduce sediment generated from temporary roads by obliterating them at the completion of their intended use.	All new temporary roads in the decision area will be obliterated. The work will be done by the purchaser with compliance ensured by the TSA or ER. Obliteration will include removing culverts and reestablishing stream channel configuration, reshaping of sideslopes and/or construction of waterbars, construction of access controls, and revegetation.	TSA; ER	BT5.1 BT6.62 BT6.65 BT6.66 CT5.44# CT5.45# CT6.6#
18.03	PROTECTION OF SOIL AND WATER FROM PRESCRIBED BURNING EFFECTS - To maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients,	Prescribed burn plans identify the conditions necessary to prevent soil damage and meet site preparation objectives while maintaining the integrity of riparian areas and retaining sufficient ground cover to prevent erosion of the burned areas. Practices include construction of water bars in fire lines, and	Fuels Specialist	Burn Plan

WCI	SWCP OBJECTIVE	CONSIDERATIONS FOR IMPLEMENTATION	PERSON(S) RESPONSIBLE	SPECIFICATION
	and debris from entering surface water.	removal of all debris added to stream channels as a result of prescribed burning. Additional, remedial practices may be needed in areas where burn intensity and severity is greater than planned.		

A-3 MONITORING

The general objective of the monitoring in this EIS is to determine if land management activities are being implemented correctly and if the implementation requirements are effective. The following Monitoring Plans have been prepared for this project. They represent monitoring supplemental to other monitoring conducted by the Forest.

SWCP MONITORING PLAN - Implementation

OBJECTIVE: To document what practices were implemented to meet specific SWCPs and other requirements and where they were applied.

***ITEMS TO MONITOR*:** Practices identified in Appendix A-1 that are applicable the municipal watershed, fisheries, and/or soil productivity issues and selected SWCPs identified in Appendix A-2.

***TYPE OF MONITORING*:** Implementation.

***METHODS/PARAMETERS*:**

Timber harvest and associated activities

Planning And Contract Preparation – Before the timber sale contract is completed, the presale forester will review the contract to ensure its consistency with the NEPA documents. Problems will be resolved prior to finalizing the contract through consultation with appropriate IDT members or other specialists. The consistency check will include a review of whether or not contract provisions have been included into the contract. The presale forester will document that the consistency review was satisfactorily completed.

***FREQUENCY/DURATION*:** Once

***REPORTING PROCEDURES*:** Email to Forest hydrologist

Sale and Unit Operations – Day-to-day implementation of specific practices is documented in timber sale inspection forms or contract daily diaries and kept in the official timber sale record by the TSA or COR. If the necessary practices are not being implemented, the TSA or COR will require implementation within a specified timeframe and do a follow-up inspection. Before the final acceptance of a harvest unit, the TSA must complete a final unit inspection and report. Any additional or corrective measures must be completed by the sale operator before going on to another unit.

***FREQUENCY/DURATION*:** Variable

***REPORTING PROCEDURES*:** Copies of inspection forms, daily dairies, and the final unit inspection report to Forest hydrologist. Region 5 of the Forest Service has developed 29 standard evaluation forms for their best management practices. Use of these forms is optional for implementation monitoring. The forms are available at http://fsweb.r5.fs.fed.us/unit/ec/water/bmp.html

Road construction and reconstruction, water collection and conveyance system reconstruction

Planning And Contract Preparation – Before the appropriate contracts are completed, the agency representative assigned to each project will review the contracts to ensure consistency with the NEPA documents. Problems will be resolved through negotiation with the contracting or cooperating agency or entity. Unresolved issues will be documented in detail.

***FREQUENCY/DURATION*:** Once

***REPORTING PROCEDURES*:** Email to Forest hydrologist

Construction Operations – Day-to-day implementation of specific practices is documented on inspection forms or contract daily diaries and kept in individual project files. If practices are not being implemented, the Forest Service project inspector(s) will advise the contractor's liaison of the requirements and schedule follow-up inspections.

***FREQUENCY/DURATION*:** Variable

***REPORTING PROCEDURES*:** Copies of inspection forms, daily dairies, and any final reports to Forest Hydrologist. Region 5 of the Forest Service has developed 29 standard evaluation forms for their best management practices. Use of these forms is optional for implementation monitoring.

***PROJECTED TOTAL COSTS*:** $2,000/sale/year.

***MONITORING RESPONSIBILITY*:** District Ranger, Timber Sale Administrator or Project Supervisor/Administrator, Engineering Representative

SWCP MONITORING PLAN - Effectiveness

***OBJECTIVE*:** To visually determine whether the practices used to meet the objectives or specifics of SWCPs were effective (successful).

***ITEM TO MONITOR*:** Practices identified in Appendix A-1 that are applicable the municipal watershed, fisheries, and/or soil productivity issues and selected SWCPs identified in Appendix A-2.

***TYPE OF MONITORING*:** Effectiveness

***METHODS/PARAMETERS*:**
Use the Pacific Southwest (R5) process for on-site and administrative evaluations as documented in the 2002 Best Management Practices Evaluation Program (BMPEP) User's Guide (USDA-FS-PSW, 2002). This document is available at http://fsweb.r5.fs.fed.us/unit/ec/water/final_bmpep_protocols/BMPEP_Users_Guide_with_Onsite_Evaluation_Protocols_6_02.doc. A crosswalk will be developed between the two numbering systems used for individual practices. The forms may need modification to accommodate differences in practice specifications and will need modification for use with water collection and conveyance system reconstruction practices.

On-site evaluations

On-site evaluations are for specific, implemented practices. They are done by watershed specialists plus the individuals responsible for planning or administration of the activity.

***FREQUENCY/DURATION*:** Most practices are evaluated once, after they have been exposed to the typical range of hydrologic events (summer thunderstorms and/or snowmelt runoff) but before site recovery obscures evidences of effectiveness or ineffectiveness. Exceptions are noted in the User's Guide. The number of practices to be evaluated and the site selection method (random or pre-selected) will be chosen by the Forest Hydrologist in consultation with IDT members and the District Ranger.

***REPORTING PROCEDURES*:** Completion of the appropriate forms and an annual narrative summary by the Forest Hydrologist.

Administrative evaluations

The administrative evaluation is done by an IDT selected by the District Ranger. This evaluation is an assessment of multiple practices for a project. The team will select the specific locations visited in the project area. The evaluations will reflect the team consensus.

***FREQUENCY/DURATION*:** One evaluation per project the first or second field season following project completion.

***REPORTING PROCEDURES*:** Completion of the appropriate forms and a narrative summary by the IDT leader.

***PROJECTED COSTS*:** $2,500/year.
***MONITORING RESPONSIBILITY*:** District Ranger, Forest Hydrologist

VEGETATION MONITORING PLAN - Stand Structure, Treated Areas

***OBJECTIVE*:** To monitor stand structure in harvest units to determine if the alternative implemented met projections stated in the document for stocking, beetle risk, vegetative structural stage distribution, snags, and down woody material. Includes field review and analysis of post harvest surveys.

***ITEM TO MONITOR*:** Vegetation structure of treated stands. Method and quantity of post harvest treatments: fuels reduction treatments; weed and thin; and need for artificial reforestation.

***TYPE OF MONITORING*:** Implementation and effectiveness.

***METHODS/PARAMETERS*:** Current stand exam requirements for a walk thru exam.

FREQUENCY/DURATION: After harvest activities are complete prior to reforestation activities.

***PROJECTED COSTS*:** $2,400.

***REPORTING PROCEDURES*:** Monitoring Report.

***RESPONSIBILITY*:** District Silviculturist, District Wildlife Biologist, and Zone Fuels Specialist.

VEGETATION MONITORING PLAN - Reforestation, Natural And Artificial

***OBJECTIVE*:** To assure naturally regenerated areas are meeting stocking certification requirements in Silvicultural Prescription. This includes monitoring for damage to seedlings caused by livestock, wildlife, or other causes.

***ITEM TO MONITOR*:** Harvest areas identified for natural regeneration.

***TYPE OF MONITORING*:** Implementation and effectiveness.

***METHODS/PARAMETERS*:** Stand examination of natural and artificial regeneration, measure survival plots, and review for animal damage.

***FREQUENCY/DURATION*:** Perform 1st, 3rd and 5th year stocking surveys to monitor planted trees and assess natural regeneration. Measure survival and growth of staked rows the 1st and 3rd growing season after planting.

***PROJECTED COSTS*:** $9.00/acre for each stocking survey.
***REPORTING PROCEDURES*:** R4 RMRIS reporting forms.

***RESPONSIBILITY*:** District Ranger, District Silviculturist.

NOXIOUS WEEDS MONITORING PLAN

OBJECTIVE*:** To detect changes in noxious weed populations in and adjacent to all project areas; and to assure the inclusion, implementation, and effectiveness of: ***Special Provision CT6.27# - Noxious Weed Control. Requiring Timber Purchasers to furnish proof of weed-free equipment.

***ITEM TO MONITOR*:** Changes in noxious weed populations along Forest Development Roads leading to the timber sale area and within harvest units. City responsible on corridor.

***TYPE OF MONITORING*:** Implementation and effectiveness.

***METHODS/PARAMETERS*:** Visual observations at known inventoried locations within sale area and roads leading to sale.

***FREQUENCY/DURATION*:** Start Date - beginning of sale. Completion Date - one year after completion of sale.

***PROJECTED COSTS*:** $500/sale/year.

***REPORTING PROCEDURES*:** District Range Conservationist will write annual report documenting monitoring by December 31 each year.

***RESPONSIBILITY*:** District Ranger, District Range Conservationist, Sale Administrator.

CULTURAL RESOURCES MONITORING PLAN

***OBJECTIVE*:** To protect significant Historical and Paleontological Resources from effects of action alternatives.

***ITEM TO MONITOR*:** Monitor known National Register eligible/potentially eligible sites to prevent damage from action alternatives.

TYPE OF MONITORING: Implementation and effectiveness.

METHODS/PARAMETERS: Field review by Forest Heritage Staff and Sale Administrator during the life of the sale.

FREQUENCY/DURATION: Three times per year in active sale areas and once prior to closing of sale.

PROJECTED COSTS: $1800/year.

REPORTING PROCEDURES: Archaeological Site Monitoring Report and Timber Sale Inspection Report. Copy of Timber Sale Inspection Report to be filed with Archaeologist. Archaeological Monitoring data and report to be submitted to Utah State Historic Preservation Officer.

RESPONSIBILITY: District Ranger, Forest Archaeologist, Contracting Officer, and Sale Administrator